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THE PLANT DISEASE REPORTER

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The Plant Disease Reporter is issued as a service to plant pathologists throughout the United States. It contains reports, summaries, observations, and comments submitted voluntarily by qualified observers. These reports often are in the form of suggestions, queries, and opinions, frequently purely tentative, offered for consideration or discussion rather than as matters of established fact. In accepting and publishing this material the Division of Mycology and Disease Survey serves merely as an informational clearing house. It does not assume responsibility for the subject matter.

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Susceptibility of rose understocks to root knot is reported by G. E. Altstatt, page 371.

G. H. Godfrey reports potato late blight from North Dakota, page 372; it is prevalent and threatening in Rhode Island and New York, according to Frank L. Howard and M. F. Barrus, respectively.

Brief notes, page 373, include notes of downy mildew on celtuce in Pennsylvania, scarcity of sweet corn bacterial wilt on Long Island and in Massachusetts, parasitization of rusts in Kansas, sources of ergot for drug purposes, and a correction.

CHECK LIST REVISION

Freeman Weiss

SCHAEFFERIA (BIGNONIACEAE)

SCHAEFFERIA FRUTESCENS Jacq., FLORIDA-BOXWOOD. Evergreen shrub or small tree of S. Fla. and West Indies.
Microthyrium urbani Bres., black leaf spot. P. R.

SCHINUS (ANACARDIACEAE)

SCHINUS MOLLE L., CALIFORNIA PEPPER-TREE. Evergreen tree of tropical America, grown for ornament chiefly in Ariz. and Calif. A few records on S. TEREBINTHIFOLIA Raddi., BRAZIL PEPPER-TREE, grown for ornament in the far South, are included.
Armillaria mellea Vahl ex Fr., root rot. Calif.
Botryosphaeria ribis var. chromogena Shear et al., on branches. T. H.
Cuscuta subinclusa Dur. & Hilg., dodder. Calif.
Fomes applanatus (Pers. ex Fr.) Gill., heart rot. Calif.
Heterodera marioni (Cornu) Goodey, root knot. Texas.
Ganoderma polychromum (Copeland) Murr., trunk rot. Calif.
Meliola malacotricha Speg., black mildew. P. R.
Phymatotrichum omnivorum (Shear) Dug., root rot. Ariz., Texas.
Polyporus dryophilus Berk., heart rot. Calif.
P. farlowii Lloyd (Inonotus schini J. G. Brown), heart rot. Ariz., Calif.
P. sulphureus Bull. ex Fr., heart rot. Calif.
P. versicolor L. ex Fr., wound rot. Calif.
Schizophyllum commune Fr., wound rot. Calif.
Stereum hirsutum Willd. ex Fr., wood rot. Calif.
Trametes hispida Bagl., wood rot. Calif.
Verticillium sp., wilt. Calif.

SCIADOPITYS (PINACEAE - TAXODIINEAE)

SCIADOPITYS VERTICILLATA (Thunb.) Sieb. & Zucc., UMBRELLA-PINE. Ornamental evergreen tree of Japan, cult. Zone V.
Phyllosticta sp., leaf spot. R. I.
Rhizoctonia solani Kühn, damping off, root rot. Conn.
Sphaeropsis sp. (? S. ellisii Sacc.), twig blight. N. J.

SECURIDACA (POLYGALACEAE)

SECURIDACA spp. Erect or trailing shrubs of tropical America, sometimes grown for ornament.
Meliola bicornis Wint., black mildew. P. R.
Morenoella whetzelii Toro, black mildew. P. R.
Phyllachora securidacae P. Henn., black leaf spot. P. R.

SEQUOIA (PINACEAE - TAXODIINEAE)

SEQUOIA GIGANTEA (Lindl.) Decne, GIANT SEQUOIA. Evergreen tree of restricted range in central Calif., occasionally grown for ornament in the South. (The names Sequoia washingtoniana (Winsl.) Sudw. and Sequoiadendron giganteum (Lindl.) Buchholz also have authoritative support. All records in Calif. unless otherwise indicated.)

Acanthostigma sequoiae (Plowr.) Sacc., on needles.
Botrytis douglasii Tub. (? B. cinerea Pers.), seedling blight. Calif., Ohio, Pa.
Cercospora sequoiae Ell. & Ev., needle blight. Md., Pa.
Fomes annosus (Fr.) Cke., trunk rot.
Lenzites saepiaria Wulf. ex Fr., wood rot.
Pestalotia funerea Desm., needle blight. Texas.
Phomopsis juniperovora Hahn, twig blight.
P. occulta Trav., on dead twigs. Conidial stage of Diaporthe conorum (Desm.) Niessl
Wallrothiella consociata (Ell. & Hark.) Ell. & Ev., on needles.

SEQUOIA SEMPERVIRENS (Lamb.) Endl., REDWOOD. Evergreen trees, of great timber value, occurring only in the coastal zone of central California to southern Oregon, occasionally grown for ornament in the far South; the burls sometimes grown as house plants. (All records in Calif. unless otherwise indicated.)

Armillaria mellea Vahl ex Fr., root rot.
Botrytis douglasii Tub. (? B. cinerea Pers.), seedling blight.
Chloroscypha chloromela (Phill. & Hark.) Seaver., ? needle blight.
Clithris sequoiae Bonar, on twigs.
Cytospora pinastri Fr., on twigs.
Dermatea livida (Berk. & Br.) Phil., bark canker.
Fomes annosus (Fr.) Cke., trunk rot.
Ganoderma sequoiae Murrill, trunk rot.
Hexagonia carbonaria Berk. & Curt., wood rot.
Hymenochaete tabacina (Sow. ex Fr.) Lév., wood rot.
Leptostroma sequoiae Cke. & Harkn., on twigs.
Merulius hexagonoides Burt, wood rot.
Mycosphaerella sequoiae Bonar, needle blight.
Phomopsis juniperovora Hahn and P. occulta Trav., on twigs.
Polyporus spp., wood rot. P. amorphus Fr., P. sulphureus Bull. ex Fr., P. versicolor L. ex Fr.
Poria incrassata (Berk. & Curt.) Burt, dry rot of timber.
P. sequoiae Bonar, brown pocket heart rot.
Schizophyllum commune Fr., wood rot.
Stereum fasciatum Schw. and S. hirsutum Willd. ex Fr., wood rot.

SEQUOIA SEMPERVIRENS cont.
Trametes spp., wood rot. T. americana Overh., T. carbonaria Berk. & Curt. (T. sequoia Copeland), T. isabellina Fr.
Trunk galls (burls), cause unknown.

SERJANIA (SAPINDACEAE)

SERJANIA spp. Woody vines of tropical America, sometimes grown for ornament in the far South.
Cephaleuros virescens Kze., green scurf. P. R.
Meliola ambigua Pat. & Gaill., black mildew. Canal Zone, P. R.
M. serjaniae F. L. Stevens, also var. dentata F. L. Stevens. P. R.
Phyllachora sapindacearum F. L. Stevens, black leaf spot. Canal Zone.
P. serjaniicola Chardon. C. Z., P. R.
Puccinia arechavaletae Speg., rust (III). Texas, P. R.

SHEPHERDIA (ELAEAGNACEAE)

SHEPHERDIA ARGENTEA Nutt., SILVER BUFFALOBERRY, and S. CANADENSIS (L.) Nutt., RUSSET BUFFALOBERRY, shrubs or small trees of northern U. S. from New England to Texas and Wash., the former grown in hedges, also for ornament and edible fruit, Zone II.

Cucurbitaria spp. (C. occulta Cud. and C. shepherdiae Ell. & Ev.), on dead branches. Mont., N. Dak.
Cylindrosporium shepherdiae Sacc., leaf spot. Utah, Wis.
Fomes fraxinophilus (Pk.) Sacc., forma ellisianus (F. W. Anders.) Baxter, white heart rot. Northern Rocky Mt. States.
Phymatotrichum omnivorum (Shear) Dug., root rot. Texas.
Puccinia caricis-shepherdiae Davis, rust (O, I). N. Y. to Colo., N. Mex., Wash. & Alaska. II and III on Carex spp.
P. coronata Cda. (? var. elaeagni Fraser & Ledingham), rust (O, I). On S. canadensis in S. Dak. to N. Mex., Wash. & Alaska; reports on S. argentea doubtful. II and III on cereals and grasses.
Septoria shepherdiae (Sacc.) Dearn., leaf spot. Alaska, Idaho, Mont., Wis.
Sphaerotheca castagnei Lév., powdery mildew. Mont., Wyo.
S. humuli DC. ex Burr. Colo., Mont., Alaska.
Valsa spp. (V. ambiens Pers. ex Fr. and V. lepargyreae Ell. & Ev.) on dead branches. N. Dak., Wash.

SIDEROXYLON (SAPOTACEAE)

SIDEROXYLON spp. (chiefly S. FOETIDISSIMUM Jacq., MASTIC). Small evergreen trees of tropical America including S. Fla., used in cabinet work.

Halstedia portoricensis F. L. Stevens, black leaf spot. Fla., P. R.

SIDEROXYLON spp. cont.
Meliola sideroxyli F. L. Stevens, black mildew. T. H.
Polyporus hirsutus Wulf. ex Fr., wood rot. Fla.
Trametes hydnoides Sw. ex Fr., wood rot. Fla.

SIMAROUBA (SIMAROUBACEAE)

SIMAROUBA spp. Small trees of S. Fla. and West Indies, sometimes grown for ornament.

Irenina glabroides F. L. Stevens, black mildew. P. R.

SIMMONDSIA (EUPHORBIACEAE)

SIMMONDSIA CHINENSIS (Link) Schneid. (S. californica Nutt.), CALIFORNIA JOJOBA. Evergreen shrub of Growth Regions 5 & 10, sometimes grown for forage.

Strumella simmondsiae Bonar, leaf & stem spot. Calif.

SMILAX (LILIACEAE)

SMILAX spp., GREENBRIER. Mostly thorny evergreen woody vines and forest weeds, occurring chiefly in the Southern States; some spp. furnish sarsaparilla, others decorative greens (for florists' smilax see Asparagus).

Aecidium smilacis Schw., rust (C, I). N. & S. Car. II & III unknown.
Anthostomella spp., on dead stems. A. ludoviciana Ell. & Langlois, La.; A. sepelibilis (Berk. & Curt.) Sacc., N. J. to Ga. & Tenn.
Ascochyta confusa Ell. & Ev., leaf spot. N. Y., Wis.
A. smilacis Ell. & Ev. N. Y.
(A. smilacis Ell. & Mart.): Stagonospora smilacis.
Botryosphaeria muriculata Ell. & Ev., on dead stems. Ala.
Cercospora smilacina Sacc. (C. petersii (Berk. & Curt.) Atk.), leaf spot. Conn. to Fla., Texas & Nebr.

C. smilacis Thüm. (C. mississippiensis Tracy & Earle), leaf spot. Mass. to Fla., Texas & Minn.
Colletotrichum smilacis Tehon, leaf spot. Ill.
Coniothyrium fuckelii Sacc., on stems. Miss., Mo.
Cylindrosporium smilacis Ell. & Ev., leaf spot. Ala.
Cytospora smilacis Cke., on exposed roots. Ga.
Dimerosporium nimbosum Ell. & Mart. (? Parodiopsis sp.), on stems. Fla., S. Car.
Diplodia smilacina Berk., on stems and leaves. La., Mass., Miss., Mo., R. I.

SMILAX spp. cont.

Diplodina smilacis Ell. & Ev., on stems. N. J. (Conidial stage of Sphaerella smilacina ?)

Dothiorella smilacina (Pk.) Petr. & Syd., leaf spot. Mass. to La., Texas and N. Dak. (Probably includes Sphaeropsis smilacina Pk., Phyllosticta smilacis Ell. & Ev. and also Ell. & Mart., P. smilacina (Pk.) Dearn. in part, Macrophoma smilacina (Pk.) Berl. & Vogl., and M. smilacis Bubak)

Gloeodes pomigena (Schw.) Colby, on stems. Ind.

Glomerella cingulata (Ston.) Spauld. & Schrenk, on leaves. Md.

Gloniopsis ellisii Cash (Hysterium smilacis Schw.), on stems. R. I. to Fla. & La.

Haplosporella smilacis (Ell. & Ev.) Petr. & Syd., on stems. N. Y. (Sphaeropsis smilacis Ell. & Ev. and S. latispora Dearn.; possibly conidial stage of Physalospora obtusa).

Helicobasidium purpureum (Tul.) Pat., root rot. Texas.

Heterosporium asperatum Massee, on leaves.

Hypodermopsis smilacis (Schw.) Cash (Hypoderma smilacis (Schw.) Rehm), on stems. N. Y. to N. Car. & La.

Leptostroma smilacis Cke., on stems. N. Y., S. Car.

Leptothyrium smilacis Dearn., on stems. N. Y.

(Macrophoma smilacis Bub. and M. smilacina (Pk.) Berl. & Vogl.): Dothiorella smilacina.

Meliola smilacis F. L. Stevens, black mildew. P. R.

Mycosphaerella smilacicola (Cke.) Overh., leaf spot. Ga., S. Car. (Sphaerella smilacina Ell. & Ev. is recorded on stems in N. J.)

Myiocopron smilacis (De Not.) Sacc., on stems. Mass. to Ga. & Texas.

Mystrosporium atterimum Berk. & Curt., on stems. (Said to be the conidial stage of Dimerosporium nimbosum.) Fla., La., Pa.

Pestalotia clavata Cke. & Ell., leaf spot. N. Y. to Ala. & La.

Pezizella oenotherae (Cke. & Ell.) Sacc., on leaves. Va.

Phlyctaena smilacis Cke., on stems. Fla., Texas.

Phoma sp., canker. Miss.

P. smilacis Boy. & Jacz., on stems. N. Y.

Phyllachora smilacicola Chardon, black leaf spot. P. R.

Phyllactinia corylea Pers. ex Karst., powdery mildew. Mich.

Phyllosticta spp., on leaves, sometimes causing spots. P. smilacis Ell. & Ev., and also Ell. & Mart., and P. smilacina (Pk.) Dearn. are listed under Dothiorella smilacina.

P. subeffusa (Ell. & Ev.) Tehon & Stout, leaf spot. Kans., Ill., W. Va. (Phyllostictina subeffusa (Ell. & Ev.) Petr. & Syd.)

Physalospora disrupta (Berk. & Curt.) Sacc., on stems. Ala., Miss., S. Car.

P. obtusa (Schw.) Cke., on stems. Va.

Puccinia amphigena Diet., rust (O, I). On S. bona-nox, Okla.; S. herbacea, Kans., N. Dak.; S. hispida, Kans., Nebr. II & III on Calamovilfa spp.

SMILAX spp. cont.

Puccinia macrospora (Pk.) Arth., rust (O, I). On S. glauca, N. J.; S. hispida, Kans., N. J.; S. rotundifolia, Del., N. J., N. Y. II & III on Carex spp.

P. smilacis Schw., rust (II, III). On various Smilax spp. Mass. to Fla., Texas & Nebr.; P. R. O and I on Apocynum spp.

Pyrenopeziza smilacicola Dearn. & House, on stems. N. J., N. Y.

Ramularia subrufa Ell. & Holw., leaf spot. Iowa, Miss., Nebr., Wis.

Septogloeum subnudum Davis, leaf spot. Ill., Wis.

Septoria smilacina Dur. & Mont., on leaves. La.

S. smilacis Ell. & Ev., leaf spot. W. Va.

Sphaeropsis spp., on leaves & stems. S. latisspora (Pk.) Dearn. and S. smilacis Ell. & Ev. = Haplosporella smilacis; S. smilacina Pk.= Dothiorella smilacina.

S. cruenta (Fr.) Gilman & Archer, leaf spot. Iowa.

Stagonospora smilacis (Ell. & Mart.) Sacc., leaf spot. Conn. to Md., N. Dak. & Texas.

(DIVISION OF MYCOLOGY AND DISEASE SURVEY).

1939, 1940 AND 1941 ADDITIONS TO THE LIST OF CAUSES OF FUNGOUS AND BACTERIAL PLANT DISEASES IN MAINE

M. T. Hilborn

This is the third in a series listing the causes of plant diseases in Maine. The first of this series was "List of causes of fungous and bacterial plant diseases in Maine to 1936 inclusive". Plant Disease Reporter Supplement 105, 1938. The second was "1937 and 1938 additions and corrections to the list of causes of fungous and bacterial plant diseases in Maine", Plant Disease Reporter Supplement 113, 1939. This, the third in the series, brings the list up to date as far as 1941 inclusive. The list follows the same procedure as supplements 105 and 113. The sources from which the list was compiled are indicated by key letters, the meanings of which are as follows:

C = card in the file of disease records of the Department of Plant Pathology of the Maine Agricultural Experiment Station

H = herbarium of the Department of Botany, University of Maine, and the private herbaria of interested botanists at the University.

After each scientific name of a fungus are given the sources of the information, the first known date of occurrence or report of the disease, and the county in which the collection was made, where this is known.

ACER RUBRUM L. RED MAPLE
Fomes fomentarius (Fr.) Kickx H 1940 Penobscot

ANTIRRHINUM MAJUS L. SNAPDRAGON
Colletotrichum antirrhini F. C. Stewart C 1939 Waldo

CONVALLARIA MAJALIS L. LILY-OF-THE-VALLEY
Botrytis sp. C 1940 Penobscot

FRAXINUS AMERICANA L. WHITE ASH
Puccinia peridermiospora (Ellis & Tr.) Arth. C 1939 York

HORDEUM VULGARE L. BARLEY
Puccinia anomala Rostr. C 1940 Androscoggin

IRIS sp. IRIS
Didymellina iridis (Desm.) Höhn. C 1940 Kennebec

LILIUM TIGRINUM Ker. TIGER LILY
Botrytis sp. C 1940 Lincoln
Vermicularia dematium (Pers.) Fr. C 1940 Lincoln

PINUS STROBUS L. WHITE PINE
Lophodermium pinastri (Schrad.) Chev. H 1941, Penobscot, Somerset

POPULUS sp. POPLAR
Dothichiza populea Sacc. & Briard. C 1940 Aroostook

PRIMULA sp. PRIMROSE
Puccinia aristidae Tracy C 1940 Oxford

QUERCUS sp. OAK
Gnomonia veneta (Sacc. & Speg.) Kleb. C 1941 Lincoln

QUERCUS BOREALIS Michx. RED OAK
Fomes igniarius (Fr.) Kickx H 1939 Cumberland

RAPHANUS SATIVUS L. RADISH
Aphanomyces raphani Kendrick. C 1941 Somerset

RUBUS CANADENSIS L. BLACKBERRY
Kuehneola uredinis (Link) Arth. C 1939 Penobscot

RUBUS IDAEUS L. COMMON RED RASPBERRY
Pucciniastrum americanum (Farl.) Arth. C 1939 Penobscot

SOLANUM TUBEROSUM L. POTATO
Corynebacterium sepedonicum (Spieckermann & Kotthoff) Skapt. & Burkh. (Phytomonas sepedonica (Spieckermann) Magrou). C 1939 general. 1/

TSUGA CANADENSIS (L.) Carr. HEMLOCK
Pucciniastrum myrtilli (Schum.) Arth. C 1941 Knox

VIOLA sp. PANSY
Colletotrichum violae-tricoloris R. E. Sm. C 1939 Waldo

VITIS sp. GRAPE
Guignardia bidwellii (Ell.) Viala & Ravaz C 1940 Cumberland
Elsinoë ampelina Shear C 1941 Franklin

ZEA MAYS L. CORN
Cephalosporium acremonium Cda. C 1939 Kennebec
Penicillium sp. C 1941 Kennebec
(MAINE AGRICULTURAL EXPERIMENT STATION).

SOME ESTIMATES OF LOSSES FROM PLANT DISEASES IN THE UNITED STATES PRIOR TO 1917

Neil E. Stevens

From the time of its formal organization in 1917 until 1940 the Plant Disease Survey of the Bureau of Plant Industry compiled and published estimates of losses due to diseases in crop plants in the United States of America. Great as are the admitted limitations of this published material it may well furnish an important part of any history of plant diseases in the United States which may be written.

At least, any attempt to supplement the record by collecting information regarding notable outbreaks of plant diseases earlier than 1917 immediately reveals the difficulty of the undertaking and the extreme scarcity of even reasonably reliable records. The items of information published below were assembled in an effort to add to our very limited knowledge of disease losses in the United States. They are all taken from the published reports of Experiment Station Directors or in a few cases Secretaries of Boards of Agriculture. It was realized that these reports would probably yield no negative evidence, that is, reports of unusual freedom from disease, and that probably many minor epidemics would go unnoticed. On the other hand,

1/ First recorded in Maine in 1932 as a ring rot of potato caused by an unknown species of bacterium. Organism identified in 1939.

it seemed reasonable to assume that any specific mention of a disease as serious would be well based and that there might be some usable numerical estimates of disease losses.

The actual reading of the reports was financed by Works Project Administration funds. As these were withdrawn May 1, 1942, the work had to be discontinued. In view of the fact that there is little likelihood of its being taken up again at an early date, some items which seemed to be of interest are recorded herewith. These are arranged alphabetically from Alaska to Ohio, although an arrangement by hosts was planned in case the work had been carried to completion. A large number of records that conveyed no more definite information on the extent of losses than can be derived from such phrases as "great destruction", "especially harmful", "enormous losses", "very destructive", are omitted from this report although it is hoped that it will be possible to follow up some of these interesting leads.

The year indicated at the head of each paragraph is the one for which the report was written, which is usually not the year in which it was published. In most cases the disease estimate refers to that year also. All exceptions are indicated in the text.

ALASKA

Cabbage -- Clubroot -- 1915 (p. 39): Clubroot of cabbage and allied plants was unusually severe at the station the past season. The plants probably became infected in the seed flats as numerous cases of infection were observed when the plants were removed from the flats to be set in the field. About 90% of the cabbage, cauliflower, and broccoli was ruined by the disease, as was about 75% of the kohl-rabi and 40% of the Brussels sprouts and kale. Turnips and other root crops were only slightly damaged.

Potato -- Dry rot -- 1915 (p. 40): Only two potato diseases were at all common during the season. These are the scab (*Oospora scabies*) and a dry rot caused by a *Fusarium* (probably *F. oxysporum*). The scab is quite common, especially on some varieties, but the greater damage is caused by the *Fusarium*. The latter caused a loss in storage from fall to spring of 10 to 15%.

ARIZONA

Tomato -- Blight -- 1903 (p. 493): The tomato blight, a bacterial disease, causing the wilting and yellowing of leaves, and later, the dying of plants, has been reported very destructive from widely separated agricultural regions of southern Arizona. In several patches about Tucson which the writer had occasion to examine, less than five percent of the stand remained.

ARKANSAS

Apple -- Scab -- 1905 (p. 166): Scab the past season was very abundant, affecting from 50 to 90% of the fruit in unsprayed orchards.

CONNECTICUT

Tomato -- Blight -- 1890 (p. 257): The growers of tomatoes near me lost nearly their whole crop in consequence of the blight. It is apparently the result of the same fungus which attacks the potato.

CALIFORNIA

Stone Fruits -- Brown Rot -- 1900 (p. 331): Statements were received from prune growers in Napa County that 50% of the crop was rotting in some orchards, and specimens of the diseased fruit received by the Experiment Station at Berkeley showed Brown Rot to be the cause. In several large orchards in Alameda County the late variety of apricots were seriously affected; 25% or more of the crop being destroyed in some cases.

Pears -- Blight -- 1903 (p. 169): Pears - The ravages of the blight were so severe [in the San Joaquin Valley] in 1903 that the crop was an entire failure. Some of the trees are almost dead and many are so badly injured that they can never recover.

DELAWARE

Grape -- Blackrot -- 1891 (p. 40): In 1888 the black rot held complete possession of Mr. Anthony's vineyard, and, as a consequence, he obtained from 1200 vines less than 250 pounds of fruit; his loss that year being approximately 98% of a normal crop.

Currants -- Blight -- 1902 (p. 43): A peculiar blight of red and black currants has been observed in the state during the present year. In one patch of black currants near Hares Corner probably one-half of the canes were dead when I visited the place in July of the present year. The disease is doubtless identical with the one described by Mr. D. G. Fairchild in 1891 at the meeting of the Botanical Club of the Am. Assoc. for the Advancement of Science and by Mr. F. C. Stewart in Bulletin 167 of the New York Experiment Station.

Peach -- "Little peach" -- 1910 (p. 31): Little peach has been present to a much greater extent than ever before... As a rough estimate of the Kent County orchards, I should say that from 20% to 40% of the peach trees showed signs of little peach.....I also believe, although with no positive proof, that many Japanese plum trees are suffering from the same disease.

FLORIDA

Potato -- Late Blight -- 1904 (p. 12): Just before harvesting the Irish potato crop of 1903, Late Blight, a fungus disease caused by Phytophthora infestans, made serious inroads. The loss was variously estimated at from 30 to 50% of the crop.

FLORIDA cont.

Potato -- Dry Rot [Fusarium] -- 1905 (p. 40): This is a widespread and destructive disease. . . . It is a difficult matter to find a lot of seed which is not more or less infected with it and it is not uncommon to find as high as 25% of the seed completely rotted by it. In a number of fields which came under our observation, as high as 60% of the seed was rotted by this fungus after it had been cut for planting.

Potato -- Wet Rot [Bacterial] -- 1905 (p. 41): It is not uncommon to have as high as 30% of the tubers rejected by the pickers and left in the field to rot. In several fields which came under our observation about 50% were more or less rotted when the crop was harvested.

Cabbage -- Black Rot -- 1908 (p. 75): In February, 1908, a trip was made to Sutherland, at the request of a number of vegetable growers of that section, in order to determine what disease was destroying their cabbage, cauliflower, and rutabaga crops. An examination of the fields showed that black rot was prevalent throughout the section, destroying from 25 to 75% of the crops.

Lettuce -- Lettuce Drop -- 1908 (p. 98): In a number of cases as much as 50% of the plants were destroyed.

Citrus Fruits -- Stem End Rot -- 1910 (p. 45): This disease first came to our notice in November of the past year. It affects nearly all varieties of citrus fruits, producing a decay, usually at the stem end. It caused heavy losses this year [1909]. The loss was estimated at between 5 and 30% of the fruit in affected groves.

Irish Potato -- Late Blight -- 1912 (p. 97): A serious outbreak of this disease was reported from the principal potato-growing districts of the State, and the entire crop was probably reduced by 25 to 30%.

Potato -- Late Blight -- 1913 (p. 94): The potato crop in the State was again attacked by a severe epidemic of Phytophthora infestans. In some places the crop was cut down to one-third of what was usual in other years.

Lettuce -- Lettuce Drop -- 1915 (p. 97): Lettuce drop was especially destructive and often, as in some cases observed near Sanford and McIntosh, nearly destroyed the entire crop.

Tomato -- Buckeye Rot -- 1916 (p. 89): The buckeye rot was observed by the writer to affect as much as 15% of the fruit in the field and 10% in transit.

Celery -- Black Heart -- 1916 (p. 90): The number of plants affected by the disease in some fields this season, 1915-1916, was running up to 80% of the total number of plants, and the disease is considered by some growers as second to no other disease of celery in point of damage it may do and its difficult control.

GEORGIA

Tomatoes -- Blossom-end Rot -- 1899 (p. 139): At the station, soon after the tomatoes began to form in the spring, the disease made its appearance, and by the time that they had become one-third grown, probably 60% were infested.

Peach and Plum -- Brown Rot -- 1900 (p. 353): Unusual losses have occurred throughout the State from this disease, Brown Rot. Probably not less than 40% of the crop of peaches and plums in commercial orchards has been lost.

INDIANA

Asparagus -- Rust -- 1900 (p. 10): The first knowledge of the appearance of rust upon asparagus in Indiana came to the station through Mr. L. C. Breyfogle of Crown Point, Lack County, who sent, October 2, 1899, a specimen of asparagus, thickly covered with rust, with the statement that his whole field of seven acres was in the same condition.

KANSAS

Oats -- Smut -- 1891 (p. 93): The amount of smut in oats in 1891, in the fields about Manhattan, was 5 3/4%, as shown by actual count.

Wheat -- Loose Smut -- 1891 (p. 93): The loose smut of wheat was considerable in 1891 in some of the plots on the College farm, in several cases being 5 to 7%, and in one case 16%.

Corn -- Smut -- 1896 (p. 200): Two hundred and six thousand, eight hundred and twenty-six stalks counted during the three years [1894-95-96], in about 500 fields, showed 9,716 smutted stalks, or 4.7%. The average of all counts made in August gives, however, 6.2%. The total loss then on the average is 2% of the grain crop, assuming that the smutted stalks have one-third less grain than the clean stalks. [This "assumption" is based on work reported earlier in the same paper].

KENTUCKY

Wheat -- Scab -- 1911 (p. 52): Wheat scab shows up occasionally, and while the loss from this disease is usually light, it may reach as high as 10%. In 1909 scab was very prevalent in Kentucky and most certainly reduced the yield in many fields 10%.

MAINE

Potato -- Late Blight -- 1859 (p. 200): The rot, for the last fifteen years, has destroyed nearly one half of the crop in this vicinity, [Kenduskeag, Penobscot County], and attempts have been made, here and elsewhere, to discover the cause, and to find a remedy.

MARYLAND

Peach -- Yellows -- 1904 (p. 7): One of the chief duties imposed by this law is the control of peach yellows, and it is gratifying to note that when this work was started, five years ago, [1889], 20% of the trees inspected were found to be diseased while the past year's inspection showed only two per cent.

Peach -- Yellows -- 1904 (p. 10): About 800,000 peach trees were examined and 17,110 found to be diseased with yellows, or about 2%.

Potato -- General diseases -- 1905 (p. 64): The estimated loss from potato diseases in Maryland in 1904 was fifteen per cent.

Wheat -- Scab -- 1910-11 (p. 44): It is safe to say that this year, although generally considered a good wheat year, the damage due to scabs has cut the yield, at the lowest estimate, 10%.

MASSACHUSETTS

Potato -- Late Blight -- 1890 (p. 223): Late potatoes have been an almost total loss throughout the State, on account of the attacks of the Potato-Rot fungus.

Muskmelons -- Downy Mildew -- 1903 (p. 30): During the past season (1902) muskmelons have been almost a total failure from this cause; and cucumbers both in and out of doors have been generally affected, the fungus being abundant everywhere upon these two plants.

Muskmelons -- Mildew -- 1903 (p. 31): The Alternaria disease appeared about July 15th [1902], but appeared to cause no immediate damage; but the mildew, coming on in the latter part of August, killed the vines completely all over the State, and no returns whatever were received from many large fields. After these two years of complete failure since the mildew appeared, it is probable that but few attempts will be made in the near future to grow this crop.

MISSOURI

Oats -- Rust -- 1896 (p. 9): . . . practically covered the same area as for 1895, estimated at 1,140,000 acres, but the yield declined from thirty bushels per acre to nineteen bushels, or a total yield of 34,200,000

bushels for 1895 to 21,660,000 bushels for 1896. The promise of this crop for June and July was not realized. Fields and localities that promised a phenomenally large yield about the time the head was forming were struck by rust resulting in many instances in complete destruction.

Oats -- Rust -- 1910 (p. 319): Red rust is one of the worst enemies of oats in this State. It can be found almost any season but does its greatest damage in a warm wet spring. In 1908, after such a spring, the oat crop was practically a total failure.

NEW YORK

Apple -- Apple Scab -- 1892 (p. 11): It may be remembered that two years since [1890] the apple scab destroyed seven-eighths of the apples of the fruit districts in the western part of the State, and threatened the extermination of certain varieties of apples which were of tender foliage.

Wheat -- Loose Smut -- 1907 (p. 18): The loss from the loose smut of wheat has been gradually increasing during the past three years [1905-06-07]. This year it undoubtedly destroyed at least 10% of the wheat crop of the State.

NORTH CAROLINA

Lettuce -- Lettuce Drop -- 1904 (p. 19): During the past eight years the lettuce growers in the vicinity of Wallace, N. C., have suffered heavy loss from a lettuce rot. The disease seems to have assumed a more aggravated form in the three years, 1901-1904, and in several cases the loss is estimated as high as 75%, the average being about 50%.

Tobacco -- Granville Tobacco Wilt -- 1906 (p. 71): Granville Tobacco Wilt continues to spread and is reported as worse this year. It was estimated to be 40% more destructive this year than last.

Lettuce -- Lettuce Drop -- 1906 (p. 67): Lettuce drop was collected in Cumberland, Robeson, Craven, and New Hanover counties, where it was exceedingly destructive, the loss ranging from 20 to 50%.

Lettuce -- Drop -- 1911 (p. 9): [In] the station lettuce beds 45% of plants were rendered unfit for market purposes in 1909.

Oats -- Rust -- 1897 (p. 35): Of these three varieties, Great Northern, American White Banner, and Fenton's Rust Proof, American Banner rusted 60 & 70% respectively in 1894 and 1895, the other two varieties being practically free from rust.

OHIO

Grapes -- Rot -- 1868 (p. 596): The uniform healthfulness of the vines and excellence of the crops continued almost unbroken until 1864

OHIO cont.

and 5. Rot among the Catawbas then caused alarm. In 1866, rot and leaf mildew appeared disastrously, and some crops were nearly ruined.

Grape -- Mildew and Rot -- 1869 (p. 26): The terrible mildew and rot destroyed some crops entirely, and these maladies made their appearance in regions that had previously been supposed to be exempt from their ravages.

GREAT BRITAIN

Potato -- Potato Blight and Rot -- 1872 (p. 32): The London Times estimates that the loss sustained by Great Britain the present year, in the consequence of this disease, will be from 20 to 30 millions sterling. (UNIVERSITY OF ILLINOIS).

NOTES ON DISEASES OF SOYBEANS AND OTHER LEGUMES IN OKLAHOMA

J. Harvey McLaughlin

Oklahoma weather has been very unusual thus far this year, being characterized by a late cool spring with unusually excessive rains in April and June and subnormal precipitation in May and July. This has resulted in certain irregularities in the development of diseases. Some diseases, ordinarily destructive, have been almost nonexistent, whereas others that are seldom observed have been very noticeable. The following observations have been made on diseases of soybeans and other legumes grown on the experiment station plots, surrounding farms, and gardens in the locality of Stillwater.

The bacterial pustule disease of soybeans caused by Phytomonas phaseoli var. sojense (Hedges) Burkh. was observed in a planting of varieties and selections of soybeans on the experiment station farm at Stillwater. The disease was first observed July 9, although it probably had been present for some time. Notes on the prevalence of the disease were taken on July 10 and July 28. Many varieties showing very little or none of the symptoms on July 10, were severely diseased by July 28. From a total of 30 varieties and selections of field soybeans (Table I-a) only 3, Chief, Arksoy 152, and C-146, were relatively free of the disease. None of the 27 varieties and selections of edible soybeans (Table I-b) seemed to be resistant to the disease. All were rated as severely attacked by the pathogen with the one exception of Fuji which was rated moderate. In another varietal test of field soybeans grown from locally obtained seed (Table I-c) only 3 varieties appeared to be relatively free of the disease. Habaro and Scioto were rated slightly infested and Ogden was rated as showing a trace of infection.

Table I. a. Prevalence of the bacterial pustule disease in varieties and selections of field soybeans grown principally from seed furnished by the U. S. Dept. of Agriculture.[a]

Varieties and selections severely diseased

Arksoy	Gibson	C-155	S49-12
Wilson	C-2	C-160	S-100
Macoupin	C-149	C-178	Rolsoy
Boone	C-153	L7-1160	Mukden
Patoka	C-154	S49-5	Darfield

Varieties and selections moderately diseased

Morse	C-148	L7-932	S49-18
C-6	C-175	S32-11	

Varieties and selections slightly diseased

Chief	Arksoy 152	C-146

Table I. b. Prevalence of the bacterial pustule disease in varieties and selections of edible soybeans grown principally from seed furnished by the U. S. Dept. of Agriculture.[a]

Varieties and selections severely diseased

Sousei	Hakota	Waseda	Willomi
Hahto-29	Etum	Kenuna	Chusei
Hahto-22	Rokerson	Kanro	Emperor
Hahto-2B	Toku	Higan	Bansei
Hahto-2A	Osayu	Tastee	Hokkaido
Agato	Goku	Aoda	Imperial
	Jogun	Giant Green	

Varieties and selections moderately diseased

Fuji

Table I. c. Prevalence of the bacterial pustule disease in varieties and selections of field soybeans grown from locally obtained seed.[a/]

Varieties and selections severely diseased

Arksoy	A-K Topeka,	Mamoloxi	Hollybrook
Arksoy-Tenn	Kansas	Illini	White Biloxi
Haberlandt	Woods Early	A-K Rousenan	Minsoy
Chiquita	Yellow	in Kansas	Delsta

Varieties and selections moderately diseased

Early Yellow	Arkan 87050	Macoupin	Mam. Yellow

Varieties and selections slightly diseased

Ogden[b/]	Habaro	Sciota

a/ Scale used in obtaining the readings was as follows:

Slightly diseased -- 10 to 25% of plants diseased.
Moderately diseased -- 25 to 50% of plants diseased.
Severely diseased -- 50% or more of plants diseased.

In general, individual plants were most severely diseased in the rows having the greatest number of diseased plants within the rows.

b/ Ogden was rated as showing a trace of infection in that only occasional plants showed symptoms of the disease.

Although July has been dry, frequent dews and the presence of grasshoppers, leaf hoppers, and other insects have probably furnished the necessary conditions for spread of the disease. Considerable leaf dropping occurred in many of the varieties, particularly those rated as severely diseased. It is not known to what extent the presence of this disease will reduce the yields of the soybeans, however, under the circumstances it does not seem possible that the severely diseased plants can produce a normal yield of either foliage or fruit.

Leaf hoppers were very prevalent in the plots, apparently causing considerable leaf damage. This damage was very noticeable in certain of the edible varieties. A condition was also observed in which the terminal tips of the plants were dying, the stem tips and leaf petioles becoming somewhat wilted and very brittle. This condition was apparently associated with a large population of leaf hoppers. Attempts to isolate either fungi or bacteria from these tips were negative.

Powdery mildew, caused by Erysiphe polygoni DC., has been observed in garden plantings of cowpeas. With suitable conditions of moisture and temperature this disease can become serious in field plantings, often becoming a limiting factor in cowpea production. A leaf spotting has also been observed on Blackeye cowpeas with which a fungus tentatively designated as Phyllosticta phaseolina Sacc. has been associated. A similar spotting has been observed on Henderson's low bush lima beans.

A virus (mosaic) disease was observed in a field planting of varieties and selections of mungbeans on July 9. All varieties and selections, including the Chinese selections, appeared to be more or less infected, with symptoms of mottling, leaf distortion, and hyperplasia.

The perfect stage of Rhizoctonia solani Kühn (Corticium vagum Berk. & Curt.)[= C. solani (Prill. & Del.) Bourd. & Galz.] was found growing on the stems of garden beans in a low wet area in early June. The fungus appeared to be superficial on the stems, causing little or no damage. Severe losses of mature and nearly mature bean plants were found to be associated with the presence of Pythium aphanidermatum (Eds.) Fitz. in the diseased stem and root tissues. This disease was characterized by rapid wilting and subsequent dying of the plants. A loss of 50% or more of the plants occurred in the garden where the disease was first observed. Similar losses were seen in several other gardens in the vicinity of Stillwater. This disease was first observed June 15, at which time the soil was especially wet and the day temperatures high. Similar losses, although not so severe, were observed in tomato plants from which the same pathogen was isolated. (OKLAHOMA AGRICULTURAL EXPERIMENT STATION, STILLWATER, OKLAHOMA).

SOYBEAN DISEASES IN IOWA

G. C. Kent

An unusual amount of root necrosis occurs on the roots of soybeans. The colorless, slightly watersoaked, shrunken lesions may be found on the small laterals much more frequently than on the larger roots. In many instances the lesions have become brown and the root is dead. Pythium spp. and Rhizoctonia are prevalent and destructive. In some fields these organisms cause cankers on the hypocotyl and, not commonly, may produce dampingoff. It seems certain that these pathogens will seriously reduce the soybean crop.

Bacterial blight appeared unusually early on soybeans this season and it is rapidly becoming epiphytotic. In many fields 4 to 6 trifoliate leaves already have been killed on each plant. Unfortunately, McClave is especially susceptible and is being seriously damaged all over the State.

For some unknown reason, the virus diseases are very conspicuous this season. From 5 to 25% of the plants show various types of mosaic symptoms. (From mimeographed leaflet No. 4 issued to members of the War Service Committee of Upper Mississippi Valley Plant Pathologists, July 16).

SCLEROTIUM RHIZODES ON GRASSES IN PENNSYLVANIA

K. W. Kreitlow

Sclerotium rhizodes Auersw. was recently observed parasitizing leaves of Poa pratensis L. and Agrostis alba L. Since this represents the first known occurrence of the disease in Pennsylvania, periodic trips were made to the area in which the disease was discovered to observe its effects and possible spread to other hosts.

Diseased plants were first discovered in a very lightly grazed pasture along the Juniata River near Alexandria, Pennsylvania, on May 6, 1942. When first observed, the disease was most noticeable on Poa pratensis. Each diseased leaf was nearly white over its entire length. Those leaves that were not severely diseased often displayed a narrow tan or red zone that separated the healthy green tissue from whitened infected tissue. The most striking characteristic of the disease was the row of white or brown sclerotia that extended the length of each diseased leaf. Oettingen (4) referred to this phenomenon as the "string of pearls" disease because of the striking effect presented by the row of sclerotia.

By May 27, nearly all infected leaves of Poa pratensis were overgrown by non-diseased leaves of the same or neighboring plants. At that time, severe infection was noted on Agrostis alba, such that numerous plants were stunted and shriveled from effects of the disease. Stout (6) previously reported Sclerotium rhizodes on A. hiemalis but considered A. alba as resistant to infection. Davis (1) reported S. rhizodes as the cause of "brown patch" of grasses in New England but did not mention species of grasses involved. Flachs (3), Ekstrand (2), and Stirrup (5) reported the organism as parasitizing other species of Agrostis in Europe.

Sclerotium rhizodes on Agrostis alba formed only 1 or 2 brown or dark grey sclerotia at the junction of diseased and healthy leaf tissue. Sclerotia on leaves of A. alba were nearly twice the size of those on diseased leaves of Poa pratensis.

A number of plants were removed from the field and placed in pots in a greenhouse. New diseased leaves grew from infected culms but mycelium failed to spread to adjacent healthy plants. These observations substantiate the work of Stout (6) with respect to Sclerotium rhizodes on Calamagrostis canadensis (Michx.) Beauv.

Sclerotia from diseased leaves were plated on potato-dextrose agar. Slow but vigorous growth soon gave rise to a mat of dense, fluffy white mycelium liberally dotted with sclerotia similar to those found on diseased plants. No fruiting structures were observed and no inoculation experiments have yet been tried.

Examination of numerous pastures has not revealed the presence of the organism elsewhere. This outbreak represents either an isolated attack or else the disease was overlooked in other areas favorable for its development.

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(U. S. REGIONAL PASTURE RESEARCH LABORATORY, DIVISION OF FORAGE CROPS AND DISEASES, BUREAU OF PLANT INDUSTRY, U. S. DEPARTMENT OF AGRICULTURE, IN COOPERATION WITH THE NORTHEASTERN STATES).

SINGLE-VIRUS STREAK OF GREENHOUSE TOMATOES

R. W. Samson

A tomato disease exhibiting symptoms suggestive of stripe (1, 6), streak or winterblight (7), glasshouse streak (5), or single-virus streak (2) was observed in considerable abundance in 6 greenhouse crops at Indianapolis, Indiana on May 29, 1942. Roughly, a trace to 20% of the plants, varying with the greenhouse, showed necrotic streaking of the upper portions of the stems and of the petioles and major leaf veins of adjacent leaves. Brown, necrotic areas were noted in the pith of the streaked stems. Necrosis of the leaves occurred as brown rings and spots, or more usually as irregular patterns of brown, necrotic lines, associated with chlorotic or bleached markings. Many more plants showed only a limited amount of leaf and petiole necrosis in addition to the rather sharply defined bleached or chlorotic areas. Careful examination revealed traces of the characteristic leaf-necrosis on still more plants that otherwise showed only a mosaic mottling. In fact, practically 100% of the plants in all houses showed mosaic mottling of the younger leaves. Fruits slightly to severely distorted and marked with depressed corky spots and broad streaks occurred on some necrotic plants and appeared to be associated with the disease.

Judging from observations of the greenhouse operators and of the extension plant pathologist and local county agent who observed the trouble

a month or more earlier, the necrotic phase of the disease was more conspicuous and injurious when the plants were younger, with only 2 or 3 clusters of fruit set, and growing rapidly. This coincided with fewer hours of sunlight and lower greenhouse temperatures.

With the advent of more cloudless days, higher greenhouse temperatures, additional fruit setting, maturity of the first fruits, and apparently a narrowing of the carbon-nitrogen ratio in the plants, development of additional necrosis was arrested and the subsequent growth of infected plants developed only mosaic symptoms.

The disease was responsible for serious losses in at least 2 of the houses, since the growers removed most of the conspicuously infected plants in an effort to stop its spread. The accompanying mosaic disease must also have reduced yields very materially in all houses. No mosaic-free plants were found that could be used as a basis of comparison, however.

The type of necrosis of stems, leaves, and fruit, the associated mosaic, the abundance of the disease (indicating a high degree of infectiousness), the circumstances under which it developed, and the results of preliminary inoculations of young tomato and Turkish tobacco plants, all have led the writer to identify the disease as single-virus streak (2). Isolated cases of apparently the same disease have been observed by the writer in Indiana greenhouses on numerous occasions in past years.

Inoculation Experiments. Young tomato plants inoculated with unheated extracts from 37 diseased plants from the Indianapolis greenhouses all developed mosaic mottling, mostly with considerable yellow blotching. Portions of the extracts heated at 75°C. for 10 minutes yielded the same symptoms on tomato as the unheated extracts. Only 2 out of a total of 222 tomato plants showed any necrosis, in the form of a very few, scattered necrotic spots. Under the same conditions some symptoms of double-virus streak (7) should have been secured if this virus complex had been present in the unheated inoculum.

Turkish tobacco plants inoculated with unheated extracts from 15 of the 37 collections developed a very clear-cut disease, characterized by the development of extensive necrosis of the inoculated leaves, vague chlorosis and necrotic flecking of next younger leaves, and a mottling of still younger leaves. This mottling was in the form of rounded or angular pale green areas that quickly became outlined by light-colored necrotic lines, producing a ring-spot type of disease. All younger leaves developed this ring-spot type of symptom complex. All tomato plants inoculated from these 15 collections developed a mosaic disease characterized by considerable yellow blotching. Transfers from such tomatoes to Turkish tobacco plants resulted in the production of the ring-spot type of disease, and, likewise, transfers from the ring-spot tobacco plants to tomato resulted in production of the yellow tomato mosaic, together with the conspicuous yellow local lesions on the inoculated leaves.

The disease produced by the virus in these 15 collections on Turkish tobacco is suggestive of that produced on this host by the plantago virus

recently described by Holmes (4). Dr. Holmes kindly supplied the writer with a stock of his virus, recently isolated from Plantago rugelii. It has been compared on tomato, Turkish tobacco, and Jimson weed with several of the writer's collections. Holmes' virus has not yet produced detectable local lesions or symptoms of systemic invasion on tomato. The symptoms produced by the 2 viruses on Turkish tobacco are similar with respect to the local lesions and ring-spotting of leaves just above the inoculated leaves, but no further symptoms have developed on the tobacco plants inoculated with Holmes' virus, while extensive mottling and initial ring-spotting has appeared on the young leaves of plants inoculated with the various collections of the writer's virus. Neither virus has produced any symptoms of systemic invasion of Jimson weed. Holmes' virus produced a large number of small, tan, necrotic lesions on the inoculated leaves of this plant, while all collections of the writer's virus have produced definitely larger local lesions. The writer's collections have not yet been tested on the various species of Plantago.

A disease closely resembling that of common tobacco mosaic developed on Turkish tobacco plants inoculated from 18 of the remaining collections. Vaguely chlorotic local lesions appeared on the inoculated leaves in a few cases, with no necrosis of the other, mottled leaves. The 4 remaining collections produced local, necrotic lesions and a systemic-tobacco-mosaic type of mottling without necrosis.

The writer is of the opinion, at present, that at least 2 viruses were present in the 37 collections, both of which are strains of tobacco mosaic, and that, in some cases, both occurred in the same tomato plant. Whether the virus producing the necrotic streak type of disease of the Indianapolis tomatoes is the same as the one producing the ring-spot type of disease on Turkish tobacco remains to be determined.

Recommended Control Measures. Assuming that the virus causing the streak disease of tomatoes in the Indianapolis greenhouses is a strain of the tobacco-mosaic virus, and, therefore, possesses some of the important properties of the latter, such as resistance to drying and aging and ease of transmission through alternate handling of diseased and healthy plants, the same control measures should apply. Infected tomato plant material should be removed from the greenhouse as completely as possible at the close of the crop season. The soil in the houses should be steam-disinfected (although most of the Indianapolis greenhouse tomato growers regularly disinfect their soil in this manner each summer or every other summer). The young seedlings for each crop should be started in steamed soil and pricked out into pots or beds of steamed soil and allowed to grow without disturbance for 2 or 3 weeks before being set out in the final location. With good growing conditions this 2- or 3-week period should be long enough for any accidentally infected plants to develop symptoms of disease and permit their detection. In the final transplanting operations extreme care should be taken not to touch any such mosaic-infected plants or plants immediately adjacent.

Alternatively, any diseased seedlings and any seedlings that may have brushed against the diseased plants should be carefully lifted and destroyed. The hands should be thoroughly washed in soap and water and rinsed in clean water before handling the remaining healthy plants in transplanting them to the permanent beds. After transplanting to the permanent beds the plants should not be handled or brushed against in tillage operations until time for the initial pruning and tying operations. The period between transplanting and tying and pruning should ordinarily be long enough for mosaic symptoms to appear on the very few plants that may have become infected up to this time. Any diseased plants or plants abnormal in any way should be carefully removed without allowing them to brush against healthy plants. After handling of diseased plants the hands should be thoroughly washed. Such precautions should be continued in all subsequent pruning, tying, and other cultural operations. It does not appear feasible to set healthy transplants in the spaces occupied by the diseased plants until any roots of the latter, still remaining in the soil, have decayed.

Such a control program should enable the greenhouse operator to delay extensive mosaic and streak infection until the plants have made most of their growth and set most of their fruit. The effects of late mosaic infection are known to be much less serious than those of early infections (3).

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(PURDUE UNIVERSITY AGR. EXP. STA., LAFAYETTE, INDIANA).

GARLIC MOSAIC IN TEXAS

G. E. Altstatt

A disease of garlic, possibly a virosis, is becoming prevalent in Texas garlic. This disease has been observed in all garlic fields visited

in the central and north Texas garlic-producing areas. The leaves of affected plants develop a mosaic or streaked pattern of white, greenish-white and yellowish colors, becoming apparent from the third to fifth months after planting. As the plant matures, symptoms become less evident, and if thrips become numerous, the mosaic symptoms may be further obscured. Most fields of garlic have from 10 to 30% of the plants affected, and in 1939, one block of about 4 acres showed 100% infection.

Experiments conducted in the field at Moulton, Texas during 1941 show that the disease is carried in the bulbs, and that by planting cloves from infected plants, the disease is carried to the new plant. It was also found that the yield from diseased plants was only 60% as much as that from healthy plants.

Incidence of Garlic Mosaic in 1942 Test*

Source of Cloves	Percentage of plants showing mosaic symptoms		
	Jan. 14	Jan. 27	Mar. 13
Field run stock	3.0	5.6	17.0
Selected mosaic-infected plants (1941)	51.8	76.5	77.1

*Planted October 11, 1941

Nothing is known of the part insects may play in transmitting the disease from plant to plant. Artificial inoculations by grafting, hypodermic needle injection, leaf pricking and leaf abrasions were made during the 1941-42 season, but symptoms were not apparent during that season. Bulbs from inoculated plants, however, have been saved and will be planted in the fall of 1942, and observed for symptoms of mosaic.
(TEXAS AGRICULTURAL EXPERIMENT STATION).

OBSERVATIONS ON CUCURBIT DOWNY MILDEW IN SOUTH CAROLINA

C. J. Nusbaum

For the first time since 1938, cucurbit downy mildew, Pseudoperonospora cubensis, was destructive this year in South Carolina. In Barnwell County the first infection center, which comprised only 3 lesions on 1 plant, was found in a field of cucumbers on May 30, 1942, 3 weeks earlier than the first appearance recorded in 1941. Several scattered foci of infection, all of recent origin, were found 3 days later. The disease spread very quickly on cucumber and cantaloupe.

Many cucumber fields showed heavy infection by June 12 and complete destruction by June 20. Nevertheless, cucumber harvest was approaching its peak when mildew appeared and satisfactory returns were obtained by most growers before the vines succumbed to the disease.

The first infection upon cantaloupes was found on June 6. However, cantaloupes, being about 3 weeks later than cucumbers, suffered greater damage. In some fields mildew had caused some defoliation before June 22, when harvest began. Heavy defoliation, which followed, caused a considerable portion of the fruit to ripen prematurely, resulting in reduced quality and yield. Peak harvest was reached about one week in advance of expectations and ended about July 1.

The economic effect of downy mildew on cantaloupes in South Carolina is complicated by the marketing practices employed. A large portion of the crops is sold in bulk and growers prefer earliness, even though premature, to quality in order to gain the higher prices which the first fruits invariably bring. Therefore, until a marketing system based upon a quality product is established, downy mildew control practices will probably not find popular favor.

Downy mildew appeared on watermelon foliage during mid-June but was much less severe on this crop than upon cucumber and cantaloupe.

The results of downy mildew control experiments with cucumber and cantaloupe will be reported at a later date.
(EDISTO EXPERIMENT STATION, BLACKVILLE, S. C.).

TOMATO DISEASES REPORTED FROM NEW YORK

(From Weekly News Letter for dates indicated)

Early blight was rather generally reported, although not always as important. In Wayne County replanting was necessary in some fields of southern-grown tomatoes, while others were harrowed and planted to another crop because losses of about 50% resulted from weather favorable to early blight development, according to W. D. Tyler (June 22). Wm. J. Clark reported the disease as widespread in Rockland County, with considerable defoliation and some fruit loss (July 20), causing a probable reduction in the crop of early tomatoes of 25 to 50% (August 3). M. E. Buckley and E. G. Heath reported some defoliation and fruit rotting from early blight in Westchester County (August 10).

Bacterial canker (Phytomonas michiganensis) from seedbed infection was severe in affected fields on Staten Island and some would be plowed under, according to A. A. Foster (July 20). C. G. Small reported occasional cases in Ulster County (August 10). Severe fusarium wilt appeared in Wayne County in tomato plots from southern sources (W. D. Tyler, July 27). Late blight (Phytophthora infestans) was reported from Nassau County (Long Island) by F. M. Gordon (July 20). In Niagara County D. M. Dalrymple reported Septoria lycopersici on tomatoes from untreated seed, early varieties, not sprayed in the plant house (July 20); and a disease that seemed to be verticillium wilt (V. albo-atrum) appearing in victory gardens (July 27). Septoria blight is also present in Ulster County according to C. G. Small (August 10).

Streak (virus) was observed in a planting of southern-grown tomatoes in Nassau County, according to F. M. Gordon (July 20). In Ulster County

Cyril G. Small reported an unusual outbreak of cucumber mosaic on tomatoes, with particularly severe symptoms (July 13); however, tobacco mosaic is causing most of the injury attributable to mosaic in that county. (August 10). In Westchester County both streak and mosaic are present in some commercial fields and many home gardens, according to M. E. Buckley and E. G. Heath (August 10).

Fruit scald caused considerable loss in Rockland County, according to Wm. J. Clark, who reported, "High temperatures last weekend and bright sun caused considerable losses on tomatoes. Many of the fruits of the varieties Victor and Valiant were seriously scalded. One of our large vegetable growers tells me that even though tomatoes were not noticeably scalded, they seem to have a cooked appearance. Fruits that were nearly ripe were too badly injured to be sold at all." (July 27).

From Monroe County, Ralph G. Palmer reported (July 27) "Greenhouse tomatoes have not done well this spring. The weather in April, May, and early June was such that soil temperatures were rather low for tomatoes, even dipping into the 50°F. range. Size is below average, with a great deal of streak and mosaic [virus], and leaf mold [Cladosporium fulvum]. Earlier, when it was cooler, some ring-spot [virus] was found to be serious in several ranges. Outdoor stake or trellis tomatoes also show a great deal of mosaic with some streak. With warmer weather the mosaic may not be so injurious although it definitely interferes with fruit setting. Canning factory tomatoes are below average, owing to late setting and cool weather. Lack of moisture did not help. Recent rain and wind storms have broken branches and considerable areas have suffered more or less drowning out." Later (August 3) "The crop is still below average. A very small amount of alternaria blight [A. solani] is showing up. More or less wilt (presumably Fusarium [bulbigenum] lycopersici) is appearing in fields planted with southern-grown, certified plants."

VEGETABLE DISEASES IN MASSACHUSETTS

O. C. Boyd

On July 29 and 30, I visited several vegetable and potato fields in the Dighton and Westport sections of Bristol County. Tomato early blight [Alternaria solani] was present in all fields and caused defoliation in unsprayed plantings ranging from about 10 to 40%, with harvesting only a few days under way. The worst case was observed on a strain of greenhouse-forcing Comet grown unstaked and unpruned in the field. One field of tomatoes showed at least 50% defoliation by Septoria lycopersici. That grower practices crop rotation and saves his own seed but does not disinfect it. One case of early infection tomato late blight was observed, causing typical Phytophthora infestans injury to foliage and fruits. Another moderate infection by this disease was observed yesterday (August 4) in a Connecticut Valley tomato field in Franklin County. This is rather early for this trouble to be showing up.

Several cucumber fields were examined in Bristol County July 29 and 30,

and in Franklin County yesterday, but no trace of downy mildew was observed. However, angular leaf spot [Phytomonas lachrymans] had increased considerably and mosaic [virus] and scab [Cladosporium cucumerinum] enormously since the farm visits in Franklin County on July 23. In fact, the pickle fields visited yesterday in the Connecticut Valley and in the Franklin County hill towns showed from 10 to 100% plant infection with either scab or mosaic, or both. Once harvesting is started, the fields are soon overrun with mosaic, which cuts short vine-growth and fruiting and results in Number 2 pickles. Nevertheless, bacterial wilt [Erwinia tracheiphila], angular leaf spot, and mosaic are not so severe as they were last season, while scab is definitely worse. Anthracnose [Colletotrichum lagenarium] is about the same. One light leaf infection of Diplodina (Mycosphaerella citrullina) was observed on cucumbers in Bristol County.
(MASSACHUSETTS STATE COLLEGE. August 5).

PLANT DISEASES OCCURRING IN NEBRASKA PRIOR TO JULY 18, 1942

J. E. Livingston

The 1942 season has been one of the most favorable seasons in recent years for the development of plant diseases in Nebraska. Abundant driving rains and cool temperatures lasting into July favored the development and spread of many of the more serious diseases.

Barley was a total loss in a few fields from root rot (probably species of Helminthosporium and Fusarium, on the basis of limited isolations) and a large percentage of the fields in southern Nebraska suffered a 25% loss. In addition, there was from 15 to 20% loose smut of barley (Ustilago nuda), and with conditions favorable for floral infection this past spring, much of the seed supply for next year may be infected. A few samples of blighted barley heads (Helminthosporium spp.) are being received.

One of the highest yielding crops of winter wheat in the history of the State is now being harvested. Black stem rust [Puccinia graminis] was damaging in only 2 areas; one paralleling the North Platte Valley in Garden, Deuel, and Keith Counties, and the other extending south from Rushville in Sheridan County. Spring wheat may still be injured to some extent by black stem rust. Leaf rust [P. rubigo-vera tritici] infection was very heavy in most fields. It appeared at the earliest date on record (March 22) but developed slowly and although it caused considerable defoliation, its slow development apparently prevented serious damage. Septoria tritici and Erysiphe graminis were prevalent but unimportant. Dry-land root rot of wheat was prevalent in the region of Deuel, Keith, and Perkins Counties. Root rot was also observed in limited amounts in other areas of the State and with considerable lodging in wheat and rye one wonders if root rot may have been a contributing factor.

Beans in many small, home gardens were completely destroyed by bacterial halo blight (Phytomonas medicaginis var. phaseolicola) and quite a few

were also infected with common bacterial blight (Phytomonas phaseoli). Mosaic [virus] was responsible for about a 5% loss. No reports are yet available on the blight in field beans in western Nebraska, but with an increased acreage this year there will probably be considerable loss from common blight which is the principal disease of this crop.

Tomato bacterial speck (Phytomonas punctulans) has been abundant, although it did not cause as much damage as bacterial spot (P. vesicatoria) which was present in smaller amounts but caused the loss of a large percentage of the fruits attacked. Septoria lycopersici was present in nearly every tomato field on the lower leaves. It caused some defoliation but was not serious. Some mosaic was also present.

Potato early blight (Alternaria solani) appeared in epidemic form in the central Platte Valley. Several of the growers estimated that the yield of the Red Warba variety was reduced from 60 to 70 bushels per acre in some fields. This is the second year that early blight has occurred in this region. Ring rot (Phytomonas sepedonica)[Corynebacterium] continues to be a problem in this section of the State. Very little certified seed of the Red Warba and Irish Cobbler varieties is produced in Nebraska and imported certified seed has carried enough ring-rot infection that many growers are beginning to wonder if certified seed is worth the money. Rhizoctonia solani caused a loss of from 2 to 3% of the plants and a few plants in most fields were lost from blackleg (Erwinia carotovora).

Most of the cabbage plants are imported and in many fields there was up to 5% infection from black rot (Phytomonas campestris). Only a few fields with yellows (Fusarium conglutinans) were observed as most of the growers use yellows-resistant varieties. Cucurbit bacterial wilt (Erwinia tracheiphila) was widespread, a few infected plants being observed in most fields. It appeared to be most prevalent on muskmelons.

Root rot of peas (cause not determined) was very serious with many varieties. The early varieties suffered more than the late. In a seed treatment test at Lincoln, the Surprise variety (early) showed 20% root rot and the Alderman variety (late) was free from the disease. Mildew (Erysiphe polygoni) caused some local damage, as did also Phytomonas pisi and Ascochyta blight.

Cercospora beticola developed on garden beets so that by the end of the season the leaves were nearly covered with spots.

Peppers lost about 10% of their leaves in many of the commercial fields from Phytomonas vesicatoria. The fruits were just beginning to show the disease at the time these observations were made. Much the same situation exists with eggplants infected with Phomopsis vexans. According to one grower who specializes in producing eggplants, he has been having considerable trouble from this disease for several years.

Raspberry anthracnose (Plectodiscella [Elsinoë] veneta) was severe in the counties bordering the Missouri River. In many cases the canes were being killed and defoliation had set in by the 15th of June.

Strawberry leaf spot (Mycosphaerella fragariae) caused considerable defoliation and stunting of plants.

Sycamore anthracnose (Gnomonia veneta) caused from 60 to 75% defoliation of about 75% of the trees in eastern Nebraska. A second set of leaves has now developed and they appear to be healthy.

Elm leaf spot (Gnomonia veneta) is becoming prevalent on American and Chinese elms.

Bacterial blight (Bacterium [Phytomonas] syringae) on lilacs was widespread and caused some defoliation.

Fire blight (Erwinia amylovora) on apple and pear was present in many orchards, especially the small, home orchards.
(UNIVERSITY OF NEBRASKA COLLEGE OF AGRICULTURE).

SOME NEW RECORDS FOR VERTICILLIUM DISEASES

VERTICILLIUM WILT OF COTTON FOUND IN THE RED RIVER SECTION OF LOUISIANA: Specimens of cotton plants collected by C. C. McCrory, County Agent, Shreveport, Louisiana and recently forwarded to the Bureau of Plant Industry laboratory at the Louisiana State University, have been examined and found to be affected with the Verticillium disease.

This appears to be the first record of Verticillium albo-atrum in Louisiana. The disease has previously been reported from the sections of Arkansas, Mississippi, Tennessee, and Missouri adjacent to the Mississippi River. It frequently causes serious damage to cotton in the irrigated sections of Texas, New Mexico, Arizona, and California. In these sections recent experiments have shown considerable promise for the possibility of developing resistant varieties. (D. C. Neal, Division of Cotton and Other Fiber Crops and Diseases).

NEW ORNAMENTAL SUSCEPTS OF VERTICILLIUM: In December 1940 (Phytopath. 30: 1054-1055. 1940) the writer briefly discussed the importance of Verticillium as a pathogen of ornamental plants and listed a number of new ornamental suscepts. Since that time, Verticillium has been isolated from the following ornamental plants that were submitted to this laboratory: Begonia sp. (Hort. var. Lucile), Calceolaria sp., Glaucium flavum, Polemonium van-bruntiae, Papaver pilosum, Rudbeckia hirta, Coreopsis lanceolata, Impatiens balsamina, Callirhoë papaver, and Rosa hugonis. All of the plants exhibited typical symptoms of verticillium hadromycosis and Verticillium was isolated in pure culture from vascular tissues. Although inoculation studies have not been undertaken, there is little doubt concerning the pathogenicity of the Verticillium isolates obtained. The writer has found no previous report of the susceptibility of any of these plants to Verticillium.
(A. W. Dimock, Cornell University, Ithaca, N. Y.).

SUSCEPTIBILITY OF SOME COMMON ROSE UNDERSTOCKS TO NEMATODE ROOT KNOT

G. E. Altstatt

Cuttings of a number of rose understocks were rooted in deep sand in the greenhouse during 1941 and 1942. After the cuttings were planted, the sand was inoculated by spraying a suspension of larvae and eggs of the root knot nematode, Heterodera marioni, over the surface and washing the inoculum into the sand with water. (The inoculum was prepared by suspending infested rose or tomato roots over water in a covered bell jar. After 48 hours the nematodes and eggs began to appear in the water.) A nutrient solution containing calcium nitrate, magnesium sulphate, ammonium sulphate, and potassium phosphate was added occasionally to the sand to hasten the growth of the cuttings. About 9 months after inoculation, the cuttings were removed for examination and the relative amounts of nematode infestation found are noted in the table below. R. multiflora X R. blanda understock was the only one that was free from root knot following this inoculation. The other kinds of rootstock showed infection varying from slight to severe.

Nematode susceptibility of rose understocks

Understock	Degree of nematode infestation*
Rosa multiflora Welch	severe
multiflora upright	slight
multiflora Shafter	medium
multiflora Chenault	severe
multiflora x R. blanda	none
odorata	severe
setigera	slight
manetti	severe
blanda	severe
Ragged Robin (Gloire des Rosomanes)	slight
Texas Wax	severe
Texas Wax Thornless	medium
R. multiflora Welch x R. multiflora Chenault (#62)	severe

* slight = trace to 10% of roots with knots.
medium = 10 - 40%.
severe = 40% and over.

(TEXAS AGRICULTURAL EXPERIMENT STATION, COLLEGE STATION, TEXAS).

REPORTS ON POTATO LATE BLIGHT

The Weekly Weather and Crop Bulletin of the Department of Commerce Weather Bureau, for the week ending August 11, reports "blight" and "rotting", presumably late blight, in New England, West Virginia, and Michigan.

LATE BLIGHT IN NORTH DAKOTA: I am sending specimens of Phytophthora infestans on potato, from Grand Forks in the Red River Valley, August 10. I also found the disease in North Dakota near Park River, Cando, and Devil's Lake, and in Minnesota at East Grand Forks and Hawley. (G. H. Godfrey, Texas Agricultural Experiment Station).

RHODE ISLAND: Our Cobbler potatoes had all of their foliage dead by August 15 in spite of 7 applications of Bordeaux mixture 5-5-50.

Late blight was first reported on July 21 and it has increased remarkably in the past 2 weeks owing to the unusually rainy weather. Unsprayed Green Mountain potatoes are 100% dead. Those sprayed with 2-2-100 Bordeaux mixture are better than 95% dead. Those having 6-6-100 Bordeaux mixture are about 60% dead. Those sprayed with 18-18-100 Bordeaux have at least 90% of their foliage. These Green Mountains have only had 4 applications.

The rainfall at our local official station has been as follows:

	Inches		Inches
July 2	.33	August 9	1.66
3	1.62	10	.08
6	.08	13	1.06
11	.74	14	1.08
14	.90	17	.22
18	.26	18	1.40
27	.17	August total	
28	.13	to date	5.50
31	.03		
July total	3.26		

This is apparently a blight epiphytotic year which occurs about once out of every four or five. (Frank L. Howard, Rhode Island Agricultural Experiment Station, August 20).

LATE BLIGHT OF POTATOES PREVALENT IN NEW YORK (from Weekly News Letter, August 10): Late blight has now been found in potato fields in 21 counties, including Long Island and the western, central, and northern parts of the State. It probably exists in other counties. In most of the fields observed, it appears in small areas or on a few leaves of many plants scattered throughout the field and has not done material damage. It is much more severe in a few fields where it apparently

started early. Many muck fields are infected, but the disease is not so prevalent in upland fields of western New York except in valleys and other places favorably located for its development. Well-sprayed fields seem to have been protected to a large extent. However, the fact that the disease is widely distributed throughout many fields in all parts of the State indicates that further spread is certain to occur, given weather at all favorable for its development. It seems likely to become the most destructive disease of potatoes this year. Growers should spray or dust their potato fields frequently and thoroughly the remainder of the season. (M. F. Barrus).

BRIEF NOTES ON PLANT DISEASES AND A CORRECTION

DOWNY MILDEW ON CELTUCE (LACTUCA) IN PENNSYLVANIA: George L. Zundel sent specimens of Bremia lactucae on this new vegetable, collected from his garden at State College, August 4.

SCARCITY OF SWEET CORN BACTERIAL WILT: In Nassau County on Long Island, according to F. M. Gordon, "Stewart's disease [Phytomonas stewarti] on sweet corn has been very scarce here this summer. This may be due to 2 reasons: (1) the general practice of growing resistant hybrids, and (2) the scarcity of the corn flea beetle." (August 10).

O. C. Boyd reports from Massachusetts, "Not a single stalk of Stewart's wilt has been observed in sweet corn this year, even in Bristol County where there ordinarily is at least a small amount each year. Possibly the very cold snap (18 to 20°F. below zero) that killed peach buds throughout the southern and southeastern parts of the State may have reduced the overwintering corn flea beetles to a minimum." (August 5).

PARASITIZATION OF RUSTS IN KANSAS: I have recently collected Puccinia rubigo-vera on Elymus virginicus and E. canadensis, and P. tripsaci on Tripsacum dactyloides, all heavily parasitized by an organism resembling Darluca filum. Apparently this is a good year for the parasitization of rust in Kansas. (C. C. Johnston, Division of Cereal Crops and Diseases. August 3).

SOURCES OF ERGOT FOR DRUG PURPOSES: During the past year, drug laboratories have inquired regarding the possibilities of obtaining rye ergot, since the European supply is cut off. We now have around Brookings, South Dakota, an unusual amount of ergot [Claviceps purpurea], enough to warrant consideration for gathering by such companies. There is enough rye in eastern South Dakota to harbor an abundance of the drug if it is as abundant elsewhere as here, and there is no reason for its being otherwise. (Abstract in mimeographed letter Number 4 of the War Service Committee, Upper Mississippi Valley Plant Pathologists, of letter from W. F. Buchholtz, July 10).

A CORRECTION: On page 246 of the June 15 issue, the title should read "A disease of wheat newly recorded for this country", instead of "county".